

WHAT IS CLAIMED IS:

1 1. A method for generating a luminosity compensated image, the method
2 comprising:
3 defining a luminosity texture having a plurality of luminosity texels;
4 converting pixel data for an underlying image to an image texture having a
5 plurality of image texels;
6 blending the image texture onto a target surface having a shape; and
7 blending the luminosity texture onto the target surface, thereby generating
8 luminosity compensated pixel data for the image.

1 2. The method of claim 1, wherein the target surface comprises a polygon
2 having a plurality of vertices, at least one of the vertices being associated with one of the
3 image texels of the image texture.

1 3. The method of claim 1, further comprising:
2 providing the luminosity compensated pixel data to a display device.

1 4. The method of claim 3, wherein providing the luminosity compensated
2 pixel data to the display device includes:
3 storing the luminosity compensated pixel data in a frame buffer; and
4 subsequently scanning out the frame buffer data, thereby providing data to the
5 display device.

1 5. The method of claim 1, wherein each luminosity texel includes a
2 scaling factor.

1 6. The method of claim 5, wherein blending the luminosity texture onto
2 the target surface includes:
3 selecting one of the luminosity texels; and
4 multiplying a pixel value from the target surface by the scaling factor of the
5 selected luminosity texel.

1 7. The method of claim 5, wherein the scaling factors define a luminosity
2 gradient to be applied across an area of the image.

1 8. The method of claim 1, further comprising:

2 providing a user interface enabling a user to modify the shape of the target
3 surface.

1 9. The method of claim 8, wherein the act of defining the luminosity
2 texture includes automatically updating one or more of the luminosity texels in response to a
3 user modification of the shape of the target surface.

1 10. The method of claim 9, wherein automatically updating one or more of
2 the luminosity texels includes computing a luminosity scaling factor based on a distance to a
3 location on the target surface that maps to the texel.

1 11. The method of claim 10, wherein the distance is determined from a
2 depth coordinate of the location on the target surface.

1 12. The method of claim 1, wherein the luminosity texture includes a low
2 luminosity region.

1 13. The method of claim 12, wherein the low luminosity region
2 corresponds to an overlap region in an image to be displayed using a plurality of display
3 devices configured to display overlapping image elements.

1 14. The method of claim 1, wherein the luminosity texture includes dark
2 texels for forming a visible pattern superimposed on the underlying image.

1 15. The method of claim 14, wherein the visible pattern corresponds to a
2 message readable by a user.

1 16. The method of claim 1, further comprising:
2 providing a user interface enabling a user to define the luminosity texture.

1 17. The method of claim 16, wherein the user interface further enables the
2 user to save the luminosity texture to a file.

1 18. The method of claim 17, wherein the user interface further enables the
2 user to select a previously saved luminosity texture file to be applied.

1 19. The method of claim 16, wherein the user interface further enables the
2 user to modify the luminosity texture.

1 20. The method of claim 1, wherein each luminosity texel includes an
2 independent scaling factor for each of a plurality of color components.

1 21. The method of claim 20, wherein the plurality of color components
2 includes a red component, a green component, and a blue component.

1 22. A graphics processing system comprising:
2 a texture generation module configured to convert pixel data for an underlying
3 image to an image texture having a plurality of image texels;
4 a texture memory configured to store the underlying image texture and a
5 luminosity texture having a plurality of luminosity texels; and
6 a multistage texture blending module configured to blend each of the image
7 texture and the luminosity texture onto a target surface having a shape, thereby generating
8 luminosity-compensated pixel data for an image.

1 23. The graphics processing system of claim 22, wherein the target surface
2 comprises a polygon having a plurality of vertices, at least one of the vertices being
3 associated with a texture coordinate of the image texture.

1 24. The graphics processing system of claim 22, further comprising a
2 frame buffer configured to store the luminosity-compensated pixel data.

1 25. The graphics processing system of claim 22, further comprising
2 scanout control logic configured to provide the luminosity-compensated pixel data to a
3 display device.

1 26. The graphics processing system of claim 22, wherein each luminosity
2 texel includes a scaling factor.

1 27. The graphics processing system of claim 22, further comprising:
2 a user interface module configured to enable a user to modify the shape of the
3 target surface.

1 28. The graphics processing system of claim 27, further comprising a
2 luminosity compensation module configured to automatically update the luminosity texture

3 stored in the texture memory in response to a user modification of the shape of the target
4 surface.

1 29. The graphics processing system of claim 28, wherein the
2 luminositycompensation module is further configured to compute an updated value for a texel
3 of the luminosity texture based on a distance to a location on the target surface that maps to
4 the texel.

1 30. The graphics processing system of claim 29, wherein the distance is
2 determined from a depth coordinate of the location on the target surface.

1 31. The graphics processing system of claim 22, wherein the luminosity
2 texture includes a low luminosity region.

1 32. The graphics processing system of claim 31, wherein the low
2 luminosity region corresponds to an overlap region in an image to be displayed using a
3 plurality of display devices configured to display overlapping image elements.

1 33. The graphics processing system of claim 22, wherein the luminosity
2 texture includes darkened texels forming a visible pattern.

1 34. The graphics processing system of claim 33, wherein the pattern
2 corresponds to a message readable by a user.

1 35. The graphics processing system of claim 22, further comprising a user
2 interface module configured to enable a user to define the luminosity texture.

1 36. A computer program product comprising:
2 a computer readable medium encoded with program code, the program code

3 including:

4 program code for defining a luminosity texture that includes a scaling
5 factor for each of a plurality of luminosity texels;

6 program code for converting pixel color values of an underlying image
7 to an image texture having a plurality of image texels;

8 program code for blending the image texture onto a surface having a
9 shape; and

10 program code for blending the luminosity texture onto the target
11 surface, thereby generating luminosity compensated pixel data for the image.

1 37. The computer program product of claim 36, wherein the computer
2 readable medium comprises a magnetic storage medium encoded with the program code.

1 38. The computer program product of claim 36, wherein the computer
2 readable medium comprises an optical storage medium encoded with the program code.

1 39. The computer program product of claim 36, wherein the computer
2 readable medium comprises a carrier signal encoded with the program code and adapted for
3 transmission via a network.

1 40. The computer program product of claim 36, wherein the program code
2 further includes program code for providing a user interface enabling a user to define the
3 luminosity texture.

1 41. The computer program product of claim 36, wherein the program code
2 further includes program code for providing a user interface enabling a user to modify the
3 shape of the target surface.

1 42. The computer program product of claim 41, wherein the program code
2 further includes program code for updating the scaling factor for each luminosity texel based
3 on the modified shape of the target surface.